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Anti-Satellite Arms Issue

Proposal to Test American Weapon Spurs Debate Over Its Impact on Hopes for Peace

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News Analysis

Scientists say that the American anti-satellite weapon, if fully developed, will be vastly more advanced than the Soviet one. They say it will be a marvel of high-technology miniaturization.

"If it works, ours is going to be a lot better," John Pike, head of space policy at the Washington-based Federation of American Scientists, said in an interview yesterday. "It's going to be 10 times faster, and potentially there will be 10 times as many of them. It's going to be able to place a lot more satellites at risk."

Scientists are generally confident, too, that the American weapon is so close to technical realization that all it needs is final testing.

But there is heated debate over whether the United States should go ahead with that testing.

Some experts say that, though the American device is highly advanced, it remains militarily useless unless it is finally tested against a target orbiting in space. They say the Soviet Union already has a working weapon, though a more primitive one, and the United States must catch up.

Daniel O. Graham, a retired lieutenant general who used to be head of Air Force intelligence, said yesterday: "The Soviets can destroy a lot of important satellites and we have to counter that. For that reason alone it is necessary to test this weapon."

Banning Space Arms

However, other scientific and technical experts argue that the nation and the world would be far better off if the United States did not go ahead with the final stage of its anti-satellite weapon program in the hope of negotiating a ban on such weapons. They argue that the Soviet advantage in this particular area is minimal and that the United States has a distinct advantage in the overall field of space-arms development.

According to a study by the Cambridge-based Union of Concerned Scientists, the Soviet anti-satellite weapon is something of a blunderbuss estimated to weigh more than two tons. The weapon and liquid-fueled booster rocket stand 150 feet tall, they say. Launching it is anything but speedy. Soviet strategists must wait up to 24 hours, until the turning of the earth brings a particular target over the Asian launching site.

Another factor that would slow an attack is the fact that the warhead, rather than making a direct ascent, goes into orbit and only closes in on its target after one or two revolutions around the earth, according to the scientists' study. Interception can take up to three hours, they say. The Soviet warhead makes its kill by exploding in a hail of shrapnel.

In contrast, they say, the American weapon is small (18 feet long) and advanced. It would be launched from an F-15 jet fighter. According to military officials, the fighter soars to an altitude of some 18 miles, then fires its missile. Boosted by a two-stage solid-fueled rocket, the missile speeds upward in a direct line toward the vicinity of its target.

The attack is performed by a high-technology jewel on the tip of the missile, a cylindrical warhead 12 by 13 inches that bristles with silicon chips and other electronic gear. After separating from the missile, the warhead locks onto the target with eight tiny telescopes in its nose that gather infrared radiation from a satellite and focus it on a supercooled sensor at the heart of the warhead.

A computer sorts out the stream of information, including inertial guidance readings from a laser gyroscope. Fifty-six small steering rockets keep the warhead on a collision course with its target. The enemy satellite is destroyed when the warhead simply smashes into it at blinding speed.

"The U.S. anti-satellite weapon has the potential of having greater speed, flexibility, reliability and effectiveness," said Dr. Paul B. Stares, a research associate at the Brookings Institution, a policy study center in Washington. Dr. Stares is the author of "The Militarization of Space: U.S. Policy From 1945 to 1984," published by the Cornell University press.

While the Soviet weapon is slow in getting to its target, the American missile will be able to speed from hangar to target in an hour, according to the Union of Concerned Scientists. Once in space, the American missile wastes no time; its top speed is 500 miles a minute, a blistering clip compared with the Soviet pace of 13 miles a minute, the scientists say.

According to proponents of the American weapon, speed and sophistication are not everything. "I don't buy that idea that the Soviet weapon is old and clunky," said General Graham. "It's true that when they tried to come up with a new version they had some failures, but the old system is still very capable."

Issue of Verification

"The problem with a treaty," he added, "is that the Soviets have anti-satellite weapons in holes in the ground and there is no way to tell if they are going to still be there. You run into terrible verification problems in order to ban anti-satellite weapons."

Critics of the American weapon disagree, saying Soviet compliance with a treaty would be much easier to verify than would be the case if the small American weapon is deployed.

"The Soviets have proposed an agreement that would would be a basis for a good treaty," said Mr. Pike. "That would do a better job of protecting our national security interests than deploying an anti-satellite system. They have an ongoing moritorium on anti-satellite tests and they have proposed a draft treaty to drastically limit anti-satellite weapons."

Historians say a cycle of action and reaction started back in the 1950's when the United States tested the world's first anti-satellite weapon.

"The first test was from an air-launched system more than a quarter century ago," said Dr. Stares of the Brookings Institution. By the early 1960's, the United States had at least two operational anti-satellite systems, Dr. Stares said, adding that the Soviet Union began testing its system in 1968. Since then the Soviet Union has tested its system 20 times, not always successfully.

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